SANTA CRUZ BIOTECHNOLOGY, INC.

ASPM siRNA (m): sc-61007

BACKGROUND

Microcephaly is a genetic disorder in which the affected individual has a head circumference less than three standard deviations below the sex- and age-related mean. The reason for the reduced head circumference is due to the formation of a small brain of normal proportions; all affected individuals are mentally retarded. ASPM (for abnormal spindle homolog, microcephaly associated), also designated microcephaly, primary autosomal recessive 5 (MCPH5), is caused by mutation in the ASPM gene. In a comprehensive mutation screen of the ASPM gene, 19 mutations were identified in a cohort of 23 consanguineous families. The mutations occur throughout the gene and are all assumed to be protein truncating. Research demonstrates that phenotypic variation in 51 affected individuals occurrs in the degree of microcephaly (5 to 11 SDs below normal) and of mental retardation (mild to severe), but appeared to be independent of mutation position in the gene.

REFERENCES

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2. Jamieson, C.R., et al. 2000. Primary autosomal recessive microcephaly: MCPH5 maps to 1q25-q32. Am. J. Hum. Genet. 67: 1575-1577.
3. Bond, J., et al. 2002. ASPM is a major determinant of cerebral cortical size. Nat. Genet. 32: 316-320.
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6. Wallerman, O., et al. 2003. Evidence for a second gene for primary microcephaly at MCPH5 on chromosome 1. Hereditas 139: 64-67.
7. Kumar, A., et al. 2004. Genetic analysis of primary microcephaly in Indian families: novel ASPM mutations. Clin. Genet. 66: 341-348.
8. Kouprina, N., et al. 2005. The microcephaly ASPM gene is expressed in proliferating tissues and encodes for a mitotic spindle protein. Hum. Mol. Genet. 14: 2155-2165.
9. Mochida, G.H. 2005. Cortical malformation and pediatric epilepsy: a molecular genetic approach. J. Child Neurol. 20: 300-303.

CHROMOSOMAL LOCATION

Genetic locus: Aspm (mouse) mapping to 1 F.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

ASPM siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ASPM shRNA Plasmid (m): sc-61007-SH and ASPM shRNA (m) Lentiviral Particles: sc-61007-V as alternate gene silencing products.

For independent verification of ASPM (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61007A, sc-61007B and sc-61007C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ASPM siRNA (m) is recommended for the inhibition of ASPM expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ASPM gene expression knockdown using RT-PCR Primer: ASPM (m)-PR: sc-61007-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.